

CLAIMS

1 1. A method for routing one or more conductive traces between
2 a plurality of electronic components of a multilayer signal
3 routing device, the method comprising:

4 forming a first inter-component channel at a first
5 routing layer of the multilayer signal routing device, the
6 first inter-component channel extending between a first set of
7 two or more electronic components of the plurality of
8 electronic components and having a first orientation; and

9 forming a second inter-component channel at a second
10 routing layer of the multilayer signal routing device, the
11 second inter-component channel extending between a second set
12 of two or more electronic components of the plurality of
13 electronic components and having a second orientation
14 different from the first orientation.

1 2. The method as in Claim 1, further comprising the step of
2 routing at least one conductive trace between at least one
3 electronic component of the first set of electronic components
4 and at least one electronic component of the second set of
5 electronic components via at least a portion of the first
6 inter-component channel and at least a portion of the second
7 inter-component channel.

1 3. The method as in Claim 2, further comprising the step of
2 forming a conductive path between the first inter-component
3 channel at the first routing layer and the second inter-
4 component channel at the second routing layer.

1 4. The method as in Claim 3, wherein the conductive path
2 includes a blind via or a microvia.

1 5. The method as in Claim 1, further comprising the step of
2 forming a third inter-component channel at a routing layer of
3 the multilayer signal routing device, the third inter-
4 component channel extending between a third set of two or more
5 electronic components of the plurality of electronic
6 components and having a third orientation substantially
7 parallel to the first orientation.

1 6. The method as in Claim 5, further comprising the step of
2 routing at least one conductive trace between at least one
3 electronic component of the first set of electronic components
4 and at least one electronic component of the third set of
5 electronic components via at least a portion of the first
6 inter-component channel, at least a portion of the second
7 inter-component channel and at least a portion of the third
8 inter-component channel.

1 7. The method as in Claim 5, wherein the third inter-
2 component channel is formed at the first routing layer of the
3 multilayer signal routing device.

1 8. The method as in Claim 5, wherein the third inter-
2 component channel is formed at a third routing layer of the
3 multilayer signal routing device.

1 9. The method as in Claim 1, further comprising the step of
2 forming one or more conductive paths between one or more of
3 the electronic components and one or more of the first and
4 second inter-component channels.

1 10. A method for routing one or more conductive traces
2 between a plurality of electronic components of a multilayer
3 signal routing device, the method comprising:

4 forming a first set of one or more inter-component
5 channels at a first set of one or more routing layers of the
6 multilayer signal routing device, wherein each inter-component
7 channel of the first set of inter-component channels extends
8 between at least two of the plurality of electronic components
9 and has an orientation substantially parallel to a first
10 orientation;

11 forming a second set of one or more inter-component
12 channels at a second set of one or more routing layers of the

13 multilayer signal routing device, wherein each inter-component
14 channel of the second set of inter-component channels extends
15 between at least two of the plurality of electronic components
16 and has an orientation substantially parallel to a second
17 orientation different from the first orientation; and
18 routing at least one conductive trace from at least one
19 electronic component to at least one other electronic
20 component via at least one portion of one or more inter-
21 component channels of the first and second sets of inter-
22 component channels.

1 11. The method as in Claim 10, further comprising the step of
2 forming one or more conductive paths between one or more
3 inter-component channels of the first set of inter-component
4 channels and one or more inter-component channels of the
5 second set of inter-component channels.

1 12. The method as in Claim 10, wherein a number of routing
2 layers of the first set of routing layers is based at least in
3 part on a number of conductive traces at least partially
4 routed in a direction substantially parallel to the first
5 orientation and a number of inter-component channels formed at
6 each routing layer of the first set of routing layers.

1 13. The method as in Claim 12, wherein a number of routing
2 layers of the second set of routing layers is based at least
3 in part on a number of conductive traces at least partially
4 routed in a direction substantially parallel to the second
5 orientation and a number of inter-component channels formed at
6 each routing layer of the second set of routing layers.

1 14. The method of Claim 10, further comprising the steps of:
2 forming a third set of one or more inter-component
3 channels at a third set of one or more routing layers of the
4 multilayer signal routing device, wherein each inter-component
5 channel of the third set of inter-component channels extends
6 between at least two of the plurality of electronic components
7 and has a third orientation different from the first and
8 second orientations; and
9 routing at least one conductive trace from at least one
10 electronic component to at least one other electronic
11 component via at least one portion of one or more inter-
12 component channels of the first, second and third sets of
13 inter-component channels.

1 15. A multilayer signal routing device having a plurality of
2 routing layers and comprising:
3 a plurality of electronic components;
4 a first set of one or more inter-component channels at a

5 first set of one or more routing layers of the multilayer
6 signal routing device, wherein each inter-component channel of
7 the first set of inter-component channels extends between at
8 least two of the plurality of electronic components and has an
9 orientation substantially parallel to a first orientation;

10 a second set of one or more inter-component channels at a
11 second set of one or more routing layers of the multilayer
12 signal routing device, wherein each inter-component channel of
13 the second set of inter-component channels extends between at
14 least two of the plurality of electronic components and has an
15 orientation substantially parallel to a second orientation
16 different from the first orientation; and

17 at least one conductive trace routed from at least one
18 electronic component to at least one other electronic
19 component via at least one portion of one or more inter-
20 component channels of the first and second sets of inter-
21 component channels.

1 16. The multilayer signal routing device as in Claim 15,
2 further comprising one or more conductive paths formed between
3 one or more inter-component channels of the first set of
4 inter-component channels and one or more inter-component
5 channels of the second set of inter-component channels.

1 17. The multilayer signal routing device as in Claim 15,
2 wherein a number of routing layers of the first set of routing
3 layers is based at least in part on a number of conductive
4 traces at least partially routed in a direction substantially
5 parallel to the first orientation and a number of inter-
6 component channels formed at each routing layer of the first
7 set of routing layers.

1 18. The multilayer signal routing device as in Claim 17,
2 wherein a number of routing layers of the second set of
3 routing layers is based at least in part on a number of
4 conductive traces at least partially routed in a direction
5 substantially parallel to the second orientation and a number
6 of inter-component channels formed at each routing layer of
7 the second set of routing layers.

1 19. The multilayer signal routing device of Claim 15, further
2 comprising:

3 a third set of one or more inter-component channels at a
4 third set of one or more routing layers of the multilayer
5 signal routing device, wherein each inter-component channel of
6 the third plurality of inter-component channels extends
7 between at least two of the plurality of electronic components
8 and has a third orientation different from the first and
9 second orientations; and

10 at least one conductive trace routed from at least one
11 electronic component to at least one other electronic
12 component via at least one portion of one or more inter-
13 component channels of the first, second and third sets of
14 inter-component channels.